7. (Amended) A process as claimed in claim 1, characterized in that the regenerated absorbent is mixed with a carrier gas, then sent to a desulfurization zone. 8. (Amended) A process as claimed in claim 1, characterized in that regeneration is carried out in the presence of a catalyst. 10. (Amended) A process as claimed in claim 1, characterized in that the used absorbent is fractionated, prior to being mixed with the regeneration gas, into at least two fractions, some of said fractions being rich in catalyst, the others being poor in catalyst. 13. (Amended) A process as claimed in claim 1, characterized in that the used absorbent is temporarily stored prior to being mixed with the regeneration gas. 16. (Amended) A regeneration device as claimed in claim 14, characterized in that it also comprises a means (18) for cooling the gases coming from regeneration means (12), whose inlet is connected to the gas outlet. 18. (Amended) A device as claimed in claim 14, characterized in that it also comprises a filtering means (1) intended to separate the used absorbent from the effluents prior to entering regeneration-filtration means (12), said means (1) being arranged upstream from the regeneration means in relation to the direction of flow of the absorbent.

19. (Amended) A device as claimed in claim 14, characterized in that it also

arranged upstream from the used absorbent inlet of regeneration means (12).

comprises a means (9) intended for storage of the used absorbent, said means being